Cushman
Electronics, Inc.
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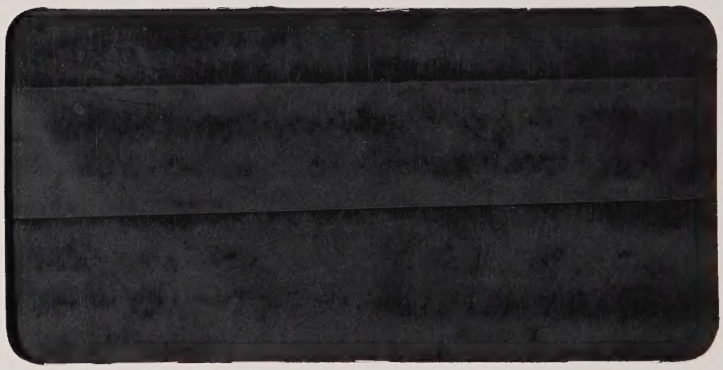
(408) 263-8100 ■ TWX:910-338-0556

MANUFACTURERS OF PRECISION ELECTRONIC INSTRUMENTS



APPLICABLE TO INSTRUMENTS
WITH SERIAL NUMBERS 4350
AND ABOVE.

MODEL 303
BROADBAND MIXER

S. E. LABS

INSTRUCTION MANUAL

CUSHMAN
ELECTRONICS, INC.

5601-0012-4

JUNE 1981

CUSHMAN INSTRUMENT WARRANTY

All instruments manufactured by Cushman Electronics, Inc. are warranted against defects in material and workmanship for one year from the date of original shipment from the factory. Cushman Electronics will repair or replace, at its discretion, instruments which prove to be defective in manufacture or materials.

The customer must notify Cushman Electronics of any defects prior to the expiration of the warranty period.

- During the first three months after the date of original shipment, there will be no charge for parts, replacement printed circuit boards, labor, or transportation charges for instruments serviced at an authorized Cushman Service Center within the customer's country. Method of transportation shall be designated by an authorized Cushman representative or Service Center.

- During the fourth through the 12th month after the date of original shipment, there will be no charge for parts, replacement printed circuit boards, or labor for instruments serviced at an authorized Cushman Service Center. All transportation charges for instruments, parts, or replacement printed circuit boards shall be paid by the customer during this period.

- During the first year, replacement printed circuit boards are warranted only when the defective boards have been identified by an authorized Cushman Service Center and the defective printed circuit board is returned in accordance with Cushman's exchange board policy.

The foregoing policy does not apply to repair service or parts sales, nor does it apply to instruments or parts of instruments which, in the opinion of Cushman Electronics, have been altered or misused.

Cushman Electronics, Inc. limits its responsibility to the repair or replacement of defective products as the sole and exclusive remedy provided to the customer and it will not be liable for any direct, indirect, special, incidental, or consequential damages. This warranty statement is in lieu of any other warranty either express or implied. Cushman Electronics disclaims any implied warranties of merchantability or fitness for a particular purpose.

EXTENDED LIMITED WARRANTY

There will be no charge for parts used by an authorized Cushman Service Center to repair a Cushman product covered by this Extended Limited Warranty for a period beginning the 13th month and continuing through the 36th month from the date of original shipment from the factory. Batteries, cathode ray tubes, and crystal oscillator ovens are excluded. All transportation charges shall be paid by the customer during this period. The conditions and limitations of the Cushman Instrument Warranty apply also to the Extended Limited Warranty policy.

Cushman Electronics, Inc.

CONTENTS

		page
SECTION 1	GENERAL	
	Description	1-1
	Service or Repair	1-1
	Preparation for Reshipment	1-3
SECTION 2	OPERATION	
	Controls and Connectors	2-1
	Operation	2-1
SECTION 3	THEORY OF OPERATION	
	Introduction	3-1
	Functional Description	3-1
	Circuit Description	3-1
SECTION 4	ADJUSTMENT	
	Signal Level Light Adjustment	4-1
SECTION 5	PARTS LIST AND SCHEMATIC DIAGRAMS	
	Introduction	5-1

TABLES

Table No.		
1-1	Model 303 Specifications	1-2
2-1	Model 303 Controls and Connectors	2-1

ILLUSTRATIONS

Figure No.		
1-1	Model 303 Broadband Mixer	1-1
5-1	Model 303 Broadband Mixer Block Diagram	5-7
5-2	Model 303 Broadband Mixer Schematic Diagram	5-9

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SECTION 1
GENERAL

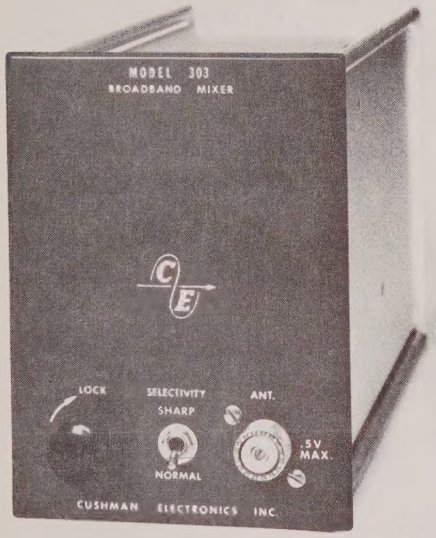


Figure 1-1. Model 303 Broadband Mixer

DESCRIPTION

1.01 The Cushman Model 303 Broadband Mixer is an RF front end for the Cushman Communication Monitors. It may be used with any of the Monitors having a plug-in capability.

1.02 The RF input circuit of the Broadband Mixer is untuned. The frequency range is the same as the Monitor used, over the range of 0.02-1.15 GHz.

1.03 The Broadband Mixer has a SHARP/WIDE* switch which controls the IF bandwidth. In the SHARP position the IF bandwidth is restricted to 22 kHz. This is for use when adjacent channel interference is a problem. In the WIDE position the IF bandwidth is approximately 65 kHz.

1.04 The Specifications for the Model 303 are listed in Table 1-1.

SERVICE OR REPAIR

1.05 In the event that factory service or repair seems to be required, contact the Cushman Electronics Customer Service Department for further service information or to make arrangements for shipment to the factory or to a Service Center. The factory address is:

Cushman Electronics, Inc.
Customer Service Department
2450 N. First Street
San Jose, California 951313
Telephone: (408) 263-8100

Cushman Electronics service is also available at the following locations:

Cushman Electronics, Inc.
100 Parish Drive
Wayne, New Jersey 07470
Telephone: (201) 696-0545

Cushman Electronics, Inc.
1335 Beltline Road
Suite 18A
Irving, Texas 75061
Telephone: (214) 256-1614

Cushman Electronics, Inc.
Northgate Office Park
Suite 110 and 111
3610 Northeast Expressway
Atlanta, Georgia 30304

Reshal Associates, Inc.
219 West University Drive
Arlington Heights, Illinois 60004
Telephone: (312) 398-7660

Tele-Radio Systems Limited
301 Supertest Road
Downsview P.O.
Toronto, Ontario, Canada
M3J 2M4
Telephone: (416) 661-3221

Tele-Radio Systems Limited
1536 Columbia Street
North Vancouver
British Columbia, Canada
V7J 1A4
Telephone: (604) 985-0511

* On older instruments this switch is labelled SHARP/NORMAL

Table 1-1. Model 303 Specifications

ITEM	CHARACTERISTIC
FREQUENCY RANGE Same as Monitor Used, within range of	0.02-1.15 GHz
SENSITVITY	10mV
MAXIMUM INPUT SIGNAL LEVEL	0.5V
INPUT IMPEDANCE	50Ω nominal
SQUELCH OUTPUT (Output ≥60mV RMS)	1 V.D.C.
OUTPUT FREQUENCY (I.F. to Monitor)	10 MHz
I.F. 3 dB BANDWIDTH	
SELECTIVITY, NORMAL SELECTIVITY, SHARP	65 kHz nominal 22 kHz nominal
I.F. 50 dB BANDWIDTH	
SELECTIVITY, NORMAL SELECTIVITY, SHARP	650 kHz nominal 150 kHz nominal
POWER REQUIREMENTS	
Local Oscillator Signal (from Monitor) +20, -12, +5V DC	-20 dBm across 50Ω From Monitor
DIMENSIONS	
Height Width Depth	14 cm (5 1/2") 10.16 cm (4") 25.4 cm (10")
WEIGHT	0.91 kg (2 lb.)
ENVIRONMENTAL	
Temperature	
Operating Storage	0° to 55°C -40° to +75°C
Humidity Vibration	90% RH, 40°C 10-55 Hz 0.025 cm (0.01")P-P Amplitude
Shock Altitude	10.16 cm (4") Bench Drop
Operative Non-Operative	4.57 km (15,000 ft) 7.62 km (25,000 ft)

PREPARATION FOR RESHIPMENT

1.06 It is recommended that the shipping box and foam packaging be kept in case it becomes necessary to ship the instrument to the service point or factory for service or repair. (Contact Cushman Electronics Customer Service Department before returning an instrument.)

1.07 The following is a general guide for repackaging the instrument for shipment.

NOTE

If the instrument is to be shipped, attach a tag to the instrument identifying the owner and indicate the service or repair to be accomplished. Include the model number and full serial number of the instrument. In any correspondence, always idenfity the instrument by model number and serial number.

1.08 If the original container is to be used, proceed as follows:

(a) Place the instrument in the original container. (If the original container is not available, one can be purchased from Cushman Electronics.)

(b) Make sure that the container is well sealed with strong tape.

1.09 If the original container is not used, proceed as follows:

(a) Wrap the instrument in plastic or heavy paper before placing in an inner container.

(b) Place packing material around all sides of the instrument.

(c) Place the instrument and inner container in a heavy carton or wooden box and seal with strong tape or metal bonds.

(d) Mark the shipping container: "DELICATE ELECTRONIC INSTRUMENT", "FRAGILE".

SECTION 2
OPERATION

CONTROLS AND CONNECTORS

2.01 The front panel controls and connectors are illustrated in Figure 1-1. The function and a brief description is given in Table 2-1.

OPERATION

2.02 Insert the Model 303 Broadband Mixer into the right hand compartment of the Monitor. Turn the LOCK screw clockwise until it is finger tight. Turn on the Monitor.

CAUTION

Signals greater than 500 mV may damage the input circuits. High level signals must be attenuated before applying them to the ANT input. Never key a transceiver when directly connected to the ANT input.

2.03 Connect a short whip antenna to the ANT input connector and place the Transmitter or Transceiver to be tested close enough to obtain sufficient signal pick-up.

2.04 Set the SELECTIVITY switch to WIDE.

NOTE

When the SELECTIVITY switch is in the WIDE position, the entire bandwidth of the 65 kHz IF channel is passed to the Monitor. To make frequency measurements when there is adjacent channel interference, this switch should be set to SHARP. In the SHARP position the bandwidth is narrowed to 22 kHz. In this case the Deviation readings may be degraded unless the sum of the modulation frequency plus the frequency deviation is less than 11 kHz. In the WIDE position this sum may be as much as 50

NOTE

Any two frequencies, however derived, that will mix in the input to generate a 10 MHz signal will be a cause of interference. The higher the level of interfering frequencies the greater will be the possibility of problems from interference.

Table 2-1. Model 303 Controls and Connectors

CONTROL OR CONNECTOR	SCHEM. REF.	DESCRIPTION	FUNCTION
LOCK		Thumbscrew	Securely Fastens Plug-in To Monitor
SHARP/WIDE	S1001	Toggle Switch	Selects Narrow or Wide IF Bandwidth
ANT	J1003	UHF Connector	Signal Input From Antenna

kHz. The SHARP position should only be used when absolutely necessary.

2.05 Place the Monitor Function switch in the MONITOR mode and dial in the frequency of the signal to be measured.

2.06 Turn on the equipment to be tested.

2.07 Adjust the distance from the equipment to be tested until the SIGNAL LEVEL light on the Monitor just comes on. At this input level the audio signal in the speaker will have minimum distortion.

2.08 Proceed with normal Monitor operation as described in the Communications Monitor Instruction Manual.

SECTION 3
THEORY OF OPERATION

INTRODUCTION

3.01 The Broadband Mixer circuits are all contained on a single printed circuit board assembly, with the exception of the input and output connections to the front and rear panel.

FUNCTIONAL DESCRIPTION

3.02 The input signal is brought in through the ANT connector to a broadband mixer circuit. Using an LO generated by the Monitor an IF of 10 MHz is produced. This 10 MHz IF either passes through a crystal filter having a bandwidth of 22 kHz or passes directly to the IF amplifiers and then to the Monitor where signal frequency and frequency deviation are measured.

CIRCUIT DESCRIPTION

3.03 Input to the Broadband Mixers enters through the ANT connector, through coupling capacitors, C1, C2, to matching resistor R1, through the 20 MHz high pass filter, L1, L2, C3-C5 to the mixer CR1. The Local Oscillator (LO) frequency is brought in from the Monitor through attenuator R3-R5 and coupling capacitors C45. C46, to the input of CR1. Refer to Figure 5-2.

3.04 The 10 MHz output of the mixer is routed either directly to the IF amplifier IC1, Q2, Q3, Q4, through diode switches, CR3, CR5, or through the crystal bandpass filter, X1 through diode switches CR2, CR6, to the IF amplifier. CR4 connects the filter by-pass loop to ground in the SHARP mode to prevent feedthrough around the filter. C8, L3 and C13, L4 provide impedance matching for the filter input and output and in addition L3, L4 provide a DC ground return for current through the filter diode switches. Q5 is a high impedance switched input to IC1; it is on when the Communications Monitor front panel FUNCTION switch is in the FM position.

3.05 The 10 MHz signal for calibrating the Frequency Meter in the Monitor is brought in from the monitor to the input of Q3. The output of Q4 passes to the Monitor and to the input of the squelch detector circuit, emitter follower, Q1. The signal is detected in CR7 and the output connected to one input of differential amplifier, IC2. The other input to IC2 is from the Squelch Adjust Control, R32, which sets the squelch voltage in relation to signal level. Output from IC2 goes to the Monitor to control the detector and the Signal Level light.

SECTION 4
ADJUSTMENT

SIGNAL LEVEL LIGHT ADJUSTMENT

4.01 Equipment Required:

RF Voltmeter	Boonton 91D or Equivalent
Signal Generator	HP608 or Equivalent

4.02 Make the Signal Level light adjustment as follows:

(a) Remove the right side cover of the Communications Monitor, and the right side shield cover of the plug-in. Insert plug-in into the right hand compartment of the monitor. Turn on Monitor.

(b) Set the signal generator frequency to 20 MHz, output level to about 50μV and connect to ANT input of the 303 plug-in. (For CE-7 set to closest available frequency.)

(c) Connect RF Voltmeter high impedance probe to pin 7 on the connector at the rear end of the plug-in compartment.

(d) Set the Monitor Frequency to 20 MHz (or the frequency used with the CE-7) and adjust the Signal Generator frequency for maximum reading on the RF Voltmeter. Adjust R32 (on right side of Broadband Mixer board) fully in the direction that causes the SIGNAL LEVEL light to come on.

(e) Adjust the Monitor Frequency until the FREQUENCY meter on the Monitor shows an error of less than 500 Hz.

(f) Adjust the Signal Generator output level for a reading of 80 mV on the RF Voltmeter.

(g) Adjust R32 until the SIGNAL LEVEL light on the Monitor just comes on.

SECTION 5
PARTS LIST AND SCHEMATIC DIAGRAMS

INTRODUCTION

5.01 The section includes the parts list, the block diagram, the schematic diagram and the component identification drawing, which shows the location of the various components on the printed circuit board.

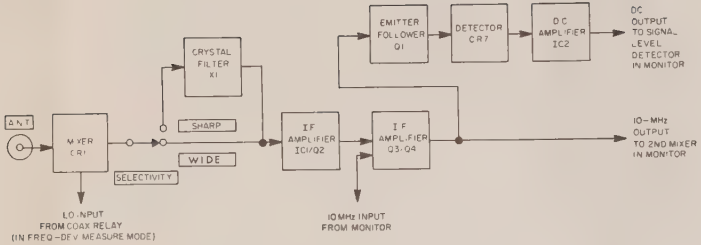
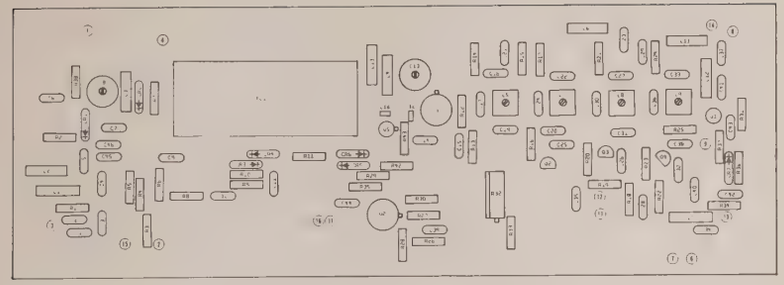


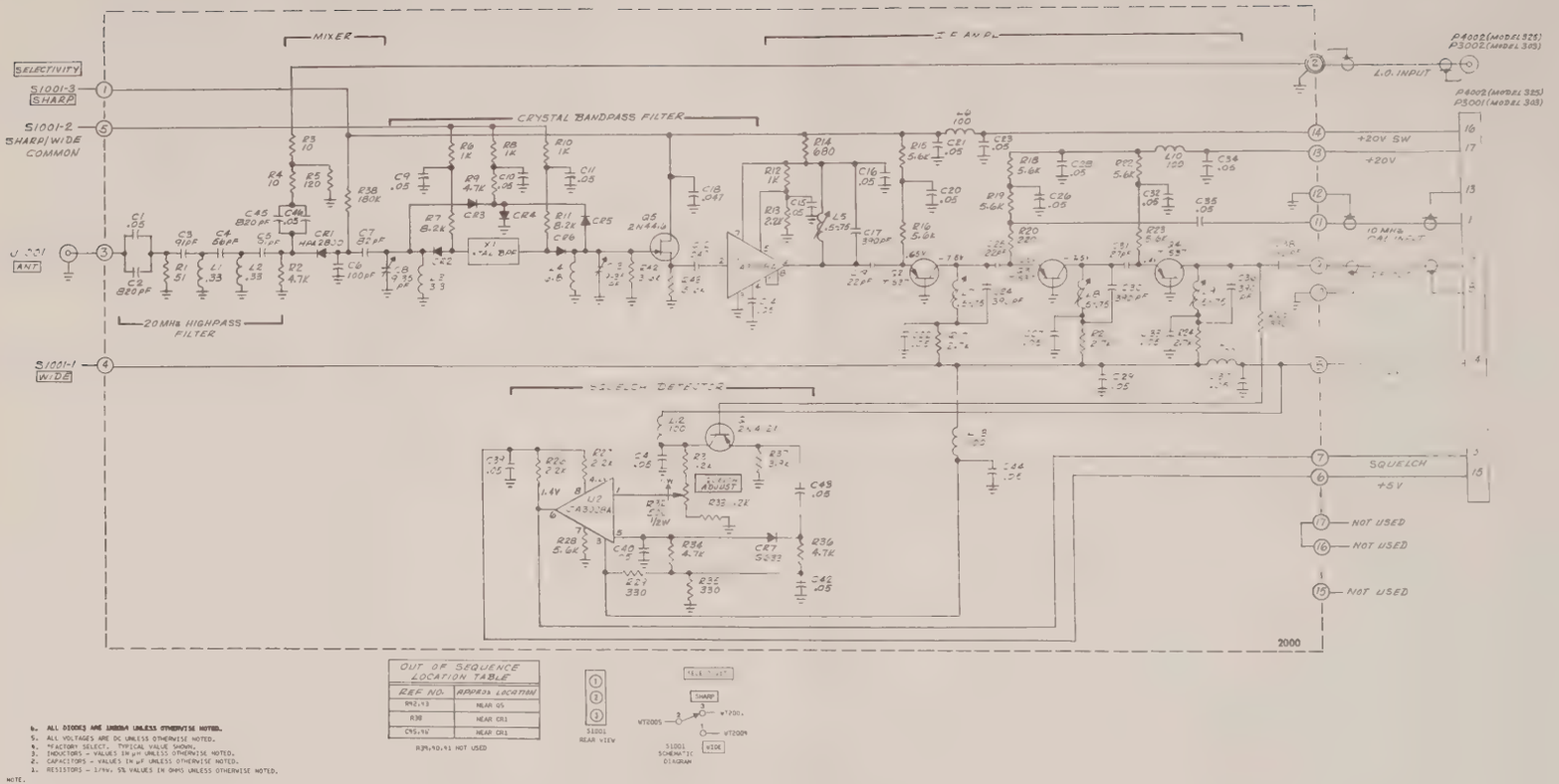
Figure 5-1. Model 303
Broadband Mixer Block Diagram

CKT. REF.	DESCRIPTION	CE STOCK NO.	MFR.	MFR. NO.
2000	Broadband Mixer & IF Amplifier	7001-0039		
	Printed Circuit Board	1780-0076		
	CAPACITORS			
C1	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C2	Mica, 820pF, ±5%, 300V	1002-0039	Elmenco	DM15-F-821J
C3	Mica, 91pF, ±5%, 500V	1002-0048	Elmenco	DM15-F-910F
C4	Mica, 56pF, ±5%, 500V	1002-0019	Elmenco	DM15-E-560J
C5	Mica, 91pF, ±5%, 500V	1002-0048	Elmenco	DM15-F-910F
C6	Mica, 100pF, ±5%, 500V	1002-0011	Elmenco	DM15-F-101J
C7	Mica, 82pF, ±5%, 500V	1002-0020	Elmenco	DM15-E-820J
C8	Trim, 9-35pF, N650, 350V	1001-0006	Erie	538-002-94D
C9	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C10	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C11	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C12	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C13	Trim, 9-35pF, N650, 350V	1001-0006	Erie	538-002-94D
C14	Mica, 330pF, ±5%, 500V	1002-0032	Elmenco	DM15-F-331J
C15	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C16	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C17	Mica, 390pF, ±5%, 500V	1002-0033	Elemen	DM15-F-391J
C18	Not Used			
C19	Mica, 22pF, ±5%, 500V	1002-0023	Elmenco	DM15-C-220J
C20	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C21	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C22	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C23	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C24	Mica, 390pF, ±5%, 500V	1002-0033	Elmenco	DM15-F-391J
C25	Mica, 22pF, ±5%, 500V	1002-0023	Elmenco	DM15-C-220J
C26	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C27	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C28	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C29	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C30	Mica, 380pF, ±5%, 500V	1002-0033	Elmenco	DM15-F-391J
C31	Mica, 27pF, ±5%, 500V	1002-0008	Elmenco	DM15-E-270J
C32	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C33	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C34	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C35	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C36	Mica, 390pF, ±5%, 500V	1002-0033	Elmenco	DM15-F-391J
C37	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C38	Mica, 27pF, ±5%, 500V	1002-0008	Elmenco	DM15-E-270J
C39	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C40	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C41	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C42	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C43	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C44	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z
C45	Mica, 820pF, ±5%, 300V	1002-0039	Elmenco	DM15-F-821J
C46	Cer, .05μF, +80-20%, 25V	1005-0014	Erie	5855-505-Y5U0-503Z

CKT. REF.	DESCRIPTION	CE STOCK NO.	MFR.	MFR. NO.
	DIODES			
CR1	Si, Hot Carrier HPA2800	1283-0001	HPA	5082-2800
CR2	Si, 1N3064	1281-0013	Teledyne	1N3064
CR3	Si, 1N3064	1281-0013	Teledyne	1N3064
CR4	Si, 1N3064	1281-0013	Teledyne	1N3064
CR5	Si, 1N3064	1281-0013	Teledyne	1N3064
CR6	Si, 1N3064	1281-0013	Teledyne	1N3064
CR7	Ge, G633 (1N281)	1282-0005	ITT	617-688-1881
	FILTER			
X1	Crystal, 10.0 MHz	1040-0012	Cushman	
	INDUCTORS			
L1	RFC, .33μH, ±5%	1585-0052	Delevan	1535-04
L2	RFC, .33μH, ±5%	1585-0052	Delevan	1535-04
L3	RFC, 3.3μH, ±10%	1585-1037	Delevan	1537-24
L4	RFC, 4.7μH, ±10%	1585-0021	Delevan	1537-28
L5	Coil, .5-.75μH, Shielded	1596-0011	Cushman	
L6	RFC, 100μH, ±5%	1585-0017	Delevan	1537-76
L7	Coil, .5-.75μH, Shielded	1596-0011	Cushman	
L8	Coil, .5-.75μH, Shielded	1596-0011	Cushman	
L9	Coil, .5-.75μH, Shielded	1596-0011	Cushman	
L10	RFC, 100μH, ±5%	1585-0017	Delevan	1537-76
L11	RFC, 100μH, ±5%	1585-0017	Delevan	1537-76
L12	RFC, 100μH, ±5%	1585-0017	Delevan	1537-76
L13	RFC, 100μH, ±5%	1585-0017	Delevan	1537-76
	INTEGRATED CIRCUITS			
IC1	RF Ampl, CA3028A	2025-0012	RCA	CA3028A
IC2	RF Ampl, CA3028A	2025-0012	RCA	CA3028A
	RESISTORS			
R1	Comp, 51Ω, ±5%, 1/4W	1066-5105	Allen-Bradley	CB5105
R2	Comp, 4.7k, ±5%, 1/4W	1066-4725	Allen-Bradley	CB4725
R3	Comp, 10Ω, ±5%, 1/4W	1066-1005	Allen-Bradley	CB1005
R4	Comp, 10Ω, ±5%, 1/4W	1066-1005	Allen-Bradley	CB1005
R5	Comp, 120Ω, ±5%, 1/4W	1066-1215	Allen-Bradley	CB1215
R6	Comp, 1k, ±5%, 1/4W	1066-1025	Allen-Bradley	CB1025
R7	Comp, 8.2k, ±5%, 1/4W	1066-8225	Allen-Bradley	CB8225
R8	Comp, 1k, ±5%, 1/4W	1066-1025	Allen-Bradley	CB1025
R9	Comp, 4.7k, ±5%, 1/4W	1066-4725	Allen-Bradley	CB4725
R10	Comp, 1k, ±5%, 1/4W	1066-1025	Allen-Bradley	CB1025
R11	Comp, 8.2k, ±5%, 1/4W	1066-8225	Allen-Bradley	CB8225
R12	Comp, 1k, ±5%, 1/4W	1066-1025	Allen-Bradley	CB1025
R13	Comp, 2.2k, ±5%, 1/4W	1066-2225	Allen-Bradley	CB2225
R14	Comp, 680Ω, ±5%, 1/4W	1066-6815	Allen-Bradley	CB6815
R15	Comp, 5.6k, ±5%, 1/4W	1066-5625	Allen-Bradley	CB5625
R16	Comp, 5.6k, ±5%, 1/4W	1066-5625	Allen-Bradley	CB5625
R17	Comp, 2.7k, ±5%, 1/4W	1066-2725	Allen-Bradley	CB2725
R18	Comp, 5.6k, ±5%, 1/4W	1066-5625	Allen-Bradley	CB5625
R19	Comp, 5.6k, ±5%, 1/4W	1066-5625	Allen-Bradley	CB5625
R20	Comp, 220Ω, ±5%, 1/4W	1066-2215	Allen-Bradley	CB2215

CKT. REF.	DESCRIPTION	CE STOCK NO.	MFR.	MFR. NO.
R21	Comp, 2.7k, ±5%, 1/4W	1066-2725	Allen-Bradley	CB2725
R22	Comp, 5.6k, ±5%, 1/4W	1066-5625	Allen-Bradley	CB5625
R23	Comp, 5.6k, ±5%, 1/4W	1066-5625	Allen-Bradley	CB5625
R24	Comp, 2.7k, ±5%, 1/4W	1066-2725	Allen-Bradley	CB2725
R25	Comp, 300Ω, ±5%, 1/4W	1066-3315	Allen-Bradley	CB3315
R26	Comp, 2.2k, ±5%, 1/4W	1066-2225	Allen-Bradley	CB2225
R27	Comp, 2.2k, ±5%, 1/4W	1066-2225	Allen-Bradley	CB2225
R28	Comp, 5.6k, ±5%, 1/4W	1066-5625	Allen-Bradley	CB5625
R29	Comp, 330Ω, ±5%, 1/4W	1066-3315	Allen-Bradley	CB3315
R30	Comp, 2.2k, ±5%, 1/4W	1066-2225	Allen-Bradley	CB2225
R31	Comp, 1.2k, ±5%, 1/4W	1066-1225	Allen-Bradley	CB1225
R32	Trim, 500Ω, ±10%, 3/4W	1215-0011	Helitrim	89WR
R33	Comp, 1.2k, ±5%, 1/4W	1066-1225	Allen-Bradley	CB1225
R34	Comp, 4.7k, ±5%, 1/4W	1066-4725	Allen-Bradley	CB4725
R35	Comp, 330Ω, ±5%, 1/4W	1066-3315	Allen-Bradley	CB3315
R36	Comp, 4.7k, ±5%, 1/4W	1066-4725	Allen-Bradley	CB4725
R37	Comp, 3.9k, ±5%, 1/4W	1066-3925	Allen-Bradley	CB3925
R38	Comp, 180k, ±5%, 1/4W	1066-1845	Allen-Bradley	CB1845
	TRANSISTORS			
Q1	Si, PNP, 2N4121	1272-0023	Fairchild	2N4121
Q2	Si, PNP, T1S37	1271-0003	T.I.	T1S37
Q3	Si, PNP, T1S37	1271-0003	T.I.	T1S37
Q4	Si, PNP, T1S37	1271-0003	T.I.	T1S37
	Front Panel	7003-0009	Cushman	
	RF Connector	2536-0025	Kings	KU79-35
	Switch, Toggle, SPDT	1850-0008	C&K	7101
	Rear Panel	7003-0010	Cushman	
	Connector, 24 pin, Male	2535-0019	Amphenal	26-159-24
	Connector, Coax	2536-0028	Specialty	28P105-2





OUT OF SEQUENCE LOCATION TABLE	
REF NO.	ADDRESS LOCATION
R42,43	NEAR Q5
R38	NEAR CR1
C45,46	NEAR CR1

R39,40,41 NOT USED

S1001 REAR VIEW

S1001 SCHEMATIC DIAGRAM

NOTE.
6. ALL DIODES ARE 1N8004 UNLESS OTHERWISE NOTED.
5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
3. INDUCTORS - VALUES IN μH UNLESS OTHERWISE NOTED.
2. CAPACITORS - VALUES IN μF UNLESS OTHERWISE NOTED.
1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

Figure 5-2. Model 303 Broadband Mixer Schematic Diagram

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Publications Department

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